**IT Applications Unit 3, AOS 1, Online Communities**

1. Complete the following, from pgs, 28- 32: **Transmission media**

**Networks are classified according to below and we will study the following:**

1. Network Categories: LAN, WAN
2. Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet
3. Network communication standards
4. Network hardware and software
5. **Transmission media**
6. Network security

**Transmission media**

**Physical Transmission**

**Twisted – pair cable**

1. What is twisted pair cable?

A twisted pair cable is the most common form of transmission in a star network. Twisted pair cables are broken down into various categories, CAT 3 which can carry 10 mbps over 100 metres, CAT 5 carry 10 mbps over 85 metres, CAT 5e can support 1 GB and CAT 6 has more stringent specifications when it comes to noise and has superfast broadband.

1. Why do new networks use CAT 5E or CAT 6 rather than CAT 3?

Cat 5E or Cat 6 has more stringent specifications when it comes to noise and has superfast broadband.

1. What are some disadvantages of CAT 5E and why is it used in so many installations?

Cat 5E cab les use all four wire pairs and can support 1 GB transmissions over short distances. It is used in so many installations because it is faster.

1. What type of networks is this cable largely used in?

The Cat 5E cable is primarily used in a star network.

**Coaxial Cable**

1. Describe the characteristics of this cable.

Coaxial cable contains only two wires. The inner wire is surrounded by insulation, and then by copper braid or sometimes aluminium, tin or lead foil, and finally another layer of protective insulation. The braid or foil is effective at shielding internal signals from outside interference. It is commonly used to connect a TV to the aerial.

1. What network is it used in?

Coaxial cable can reliably carry data over approximately 185 meters at 10 Mbps. It is used in bus networks, where all data travels in both directions away from any computer that originates a message.

**Fibre-optic cable**

1. Describe the characteristics of this cable.

Fibre-optic cable consists of special glass or plastic stands that can transmit light pulses. The light is not susceptible to electromagnetic interference and so can reliably carry data for distances of up to two kilometres.

1. Why is fibre-optic cable often used to connect major switches inside buildings as well as between buildings.

Fibre-optic cables is often used to connect major switches inside buildings as well as between building because many organizations need higher speeds within their organization, i.e. a graphic design studio.

1. What are the disadvantages of this cable?

The major disadvantage of using fibre-optic cable is that it is only capable of sending one-way. This is called simplex transmission. This is because the generator is at one end and the receiver at the other. When two-way traffic is needed, two separate strands are used. **Wireless Transmission,** p 30

**Radio Waves**

1. What is required for radio transmissions to occur?
2. Wi-Fi networks use radio waves. What are its advantages over a cable network and what are its disadvantages?
3. Describe the characteristics of Bluetooth.

**Microwaves**

1. Describe the characteristics of microwave transmission.
2. What are the limitations of microwave transmission?

**Satellite**

1. Satellite transmission can be in what forms?
2. What are the limitations of this form of transmission?
3. Who might use this form of transmission?

**Infra-red**

1. Describe the characteristics of infra-red transmission.
2. Why is radio wireless networking preferable to infra-red wireless networking?